

CLAIMS

1.

Adjustable holding apparatus for cantilever support of a pole-like member in various upright orientations, comprising in combination,

- (a) a base plate,
- (b) a pivot bracket mounted upright on said base plate,
- (c) a holder for detachably mounting one end of the pole-like member for cantilever support of the member on and protruding upwardly from said holder,

- (d) a locking gear secured to said holder and pivotally secured to said bracket by a pivot pin for supporting said holder on said base plate for pivotal motion of said holder-mounted member in a generally vertical first plane for pivotally raising and lowering the member in said pivot plane, said gear having a circumferentially extending row of locking teeth arrayed in said pivot plane, and

- (e) a locking handle mechanism including a locking pin bodily movable by said mechanism into and out of locking engagement with a selected root space between any two of said teeth for adjustably holding said holder in selected angularly spaced positions in said pivot plane.

2.

The apparatus of claim 1 wherein said locking handle mechanism includes at least one handle arm pivotally mounted to said bracket by said pivot pin for pivotal motion of said arm in a second plane parallel to said first plane, said bracket having a slot receiving said locking pin

therethrough with said locking pin axis parallel to the axis of said bracket gear pivot pin and guiding said locking pin for said gear-engaging and disengaging bodily motion of said locking pin,

 said arm having a camming slot also receiving said locking pin therethrough and operable to cam said locking pin to produce said pin bodily motion in response to said pivotal motion of said arm.

3.

 The apparatus of claim 2 wherein said bracket has a pair of spaced-apart parallel legs oriented parallel to said holder pivot plane, said bracket-gear pivot pin extending between and through said legs and pivotally supporting gear between said legs, said locking pin slot being formed by such a slot formed one in each said leg with said locking pin extending between and through both of said leg locking pin slots, and wherein said locking handle mechanism comprises said one handle arm and a like second handle arm also pivotally mounted to said bracket by said pivot pin, said handle arms flanking the outer side surfaces of said bracket legs, said locking pin extending between and through said camming slot in each handle arm.

4.

 The apparatus of claim 3 wherein said bracket is formed by extrusion into a U-shaped configuration in transverse cross section with said bracket legs defining the legs of said U-shape and a bite portion integrally joining said legs at the ends thereof remote from said gear, said bracket extrusion having fastener-receiving channels extending therethrough in the

extrusion direction and opening along one edge to the interior of the bracket, one of said channels being formed in the bite wall of the U-shaped bracket and the other two channels being formed one at each of the free ends of the legs of said bracket, said channels individually receiving therein a fastener inserted upwardly through a fastener hole in said base plate for attaching said bracket to said base plate.

5.

The apparatus set forth in claim 2 wherein said locking pin has a cylindrical outer surface of given constant diameter and wherein said locking gear has a row of bi-directional locking teeth formed with generally radially extending sides defining each of the tooth spaces between adjacent teeth such that bi-directional rotational torque forces exerted on said gear do not tend to force said locking pin out of the tooth space when engaged therein.

6.

The apparatus set forth in claim 2 wherein said locking gear has a row of monodirectional locking-ratchet teeth with one side of the space between adjacent teeth being shaped to not cam said locking pin out of engagement in said space in response to rotational torque exerted on said gear tending to lower said holder, the opposite side face of each tooth space being inclined at a camming angle such that raising said holder to exert torque on said gear with a given force causes said locking pin to be cammed out of such tooth engagement, said locking handle mechanism including a spring operable

for biasing said locking pin into the next adjacent tooth space as said gear is rotated to bring said adjacent tooth space into registry with said locking pin.

7.

The apparatus set forth in claim 2 wherein approximately half of the teeth on said locking gear are bi-directional locking teeth as set forth in claim 5, and the other half of the teeth of said gear are ratchet teeth as set forth in claim 6, whereby said gear can be de-mounted and removed from said bracket and flipped over by rotating the assembly of said holder and gear 180° about the longitudinal axis of said holder so that either the bi-directional locking teeth or the monodirectional locking-ratchet teeth can be selected for operative relationship with the locking pin upon the locking gear being inserted and remounted in the bracket.

8.

The apparatus set forth in claim 5 wherein the distance between the sidewalls of said gear locking teeth is coordinated with the diameter of said locking pin so that said pin can enter between these teeth into locking relationship therebetween, but without bottoming or touching the associated root surface between these teeth, thereby ensuring that this non-bottoming, sidewall seating action eliminates play in the rod holder once locked, well at the same time compensating for the effects of wear of said locking pin on the two pin-engaged tooth sidewalls during prolonged usage so that this anti-play feature is preserved over a long operating life of the rod holder.

9.

The apparatus set forth in claim 6 wherein the distance between the sidewalls of said gear locking teeth is coordinated with the diameter of said locking pin so that said pin can enter between these teeth into locking relationship therebetween, but without bottoming or touching the associated root surface between these teeth, thereby ensuring that this non-bottoming, sidewall seating action eliminates play in the rod holder once locked, well at the same time compensating for the effects of wear of said locking pin on the two pin-engaged tooth sidewalls during prolonged usage so that this anti-play feature is preserved over a long operating life of the rod holder.

10.

The apparatus set forth in claim 7 wherein the distance between the sidewalls of said gear locking teeth is coordinated with the diameter of said locking pin so that said pin can enter between these teeth into locking relationship therebetween, but without bottoming or touching the associated root surface between these teeth, thereby ensuring that this non-bottoming, sidewall seating action eliminates play in the rod holder once locked, well at the same time compensating for the effects of wear of said locking pin on the two pin-engaged tooth sidewalls during prolonged usage so that this anti-play feature is preserved over a long operating life of the rod holder.

11.

The apparatus set forth in claim 1 wherein said base plate is adjustably fixed to an elongate mounting track and may be slid along said track longitudinally thereof to change the position of said holder apparatus along said track, and said base plate constructed and arranged for rotational adjustment on said track such that said rod holder can be swung from sideways through an adjustment angle, as well as being pivotable up and down.

12.

The apparatus set forth in claim 11 wherein said track is made as an extrusion and comprises a base portion having a flat bottom wall flanked by laterally opposite upright sidewall portions that terminate at their upper edge at inturned lips, the mutually facing end edges of said lips being spaced apart a distance slightly greater than the maximum horizontal dimension of said bracket, the upper surface of said track base portion bottom wall being made up of a series of parallel alternating grooves and lands with the upper surfaces of said lands being coplanar with one another and with the end edges of the upper surface of said bottom wall of said track base portion, said lips having undersurfaces spaced above the upper surface of the base portion by a distance designed to receive the thickness of the base plate with a relatively close clearance sliding fit whereby the undersurface of said base is adapted to slide along and on said lands and along and on the portions of the upper surface of the end edges of the upper wall of the base whereby said lips capture said base plate against upward release from said track in any rotational operational position of said base plate on said track.

13.

The apparatus set forth in claim 12 wherein the configuration of said base plate in plan view is a modified diamond or "oblong" shape and has thumbscrew mounting holes aligned along the major axis of said base plate, the major longitudinal axis of said bracket lying in the pivot plane of said holder and being oriented perpendicular to the major axis of said base plate, the diametrically opposite first pair of ends of said base plate located along its major axis being curved in plan view with a minor radius of curvature, whereas the diametrically opposite second pair of ends of said base plate intersected by its minor axis are curves having a larger radius of curvature than said first pair of ends and are coincident with an imaginary circle whose diameter is only slightly less than the distance between the interior surfaces of the lips of said track, said base plate having locking knobs mounted one in each of said locking holes and being disposed adjacent said first pair of curved ends of said base plate, whereby said base plate is capable of rotation while being constantly captured by the track lips against upward release from the track, said base being lockable in selected angularly spaced positions in said range of rotation on said track by screwing said thumbscrews down into the grooves between lands on the bottom wall upper surface of said track.

14.

The apparatus set forth in claim 1 wherein said holder comprises a hollow tube adapted to removably receive the handle end of a trolling fishing rod for supporting the fishing rod for trolling operation as so mounted in the holder, and wherein said apparatus includes a bungee cord

affixed to the upper end of the holder and constructed and arranged for releasably engaging the fishing rod to keep the same from jumping out of said holder during trolling operation.

15.

The apparatus set forth in claim 3 wherein the camming angle of the slots in said handle arms is preferably about 30° to thereby enable said locking pin to be moved with a low manual handle raising force and to produce a smooth action within the design area available for said components and the cooperative mechanical action therebetween.

16.

Mounting track and base plate apparatus for adjustably supporting rod holder apparatus comprising an elongate mounting track and a planar base plate adjustably fixed to said track and slidable along said track longitudinally thereof to change the position of said holder along said track, and said base plate being constructed and arranged for bodily rotational adjustment on said track such that said rod holder apparatus can be swung from sideways through an adjustment angle.

17.

The apparatus set forth in claim 16 wherein said track is made as an extrusion and comprises a base portion having a flat bottom wall flanked by laterally opposite upright sidewall portions that terminate at their upper edge at inturned lips, the mutually facing end edges of said lips being spaced

apart a distance slightly greater than the maximum horizontal dimension of the portion of said rod holder apparatus to be mounted adjacent said base plate, the upper surface of said track base portion bottom wall being made up of a series of parallel alternating grooves and lands with the upper surfaces of said lands being coplanar with one another and with the end edges of the upper surface of said bottom wall of said track base portion, said lips having undersurfaces spaced above the upper surface of said track bottom wall of said base portion by a distance designed to receive the thickness of said base plate with a relatively close clearance sliding fit whereby the undersurface of said base plate is adapted to slide along and on said lands and along and on the portions of the upper surface of the end edges of the upper surface of said base bottom wall whereby said lips capture said base plate against upward release from said track in any rotational operational position of said base plate on said track.

18.

The apparatus set forth in claim 17 wherein the configuration of said base plate in plan view is a modified diamond or "oblong" shape and has thumbscrew mounting holes aligned along the major axis of said base plate, the major longitudinal axis of said holder being oriented perpendicular to the major axis of said base plate, a diametrically opposite first pair of ends of said base plat being located along its major axis and being curved in plan view with a minor radius of curvature, whereas a diametrically opposite second pair of ends of said base plate are intersected by its minor axis and are curves having a larger radius of curvature than said first pair of ends and are coincident with

an imaginary circle whose diameter is only slightly less than the distance between the interior surfaces of the lips of said track, said base plate having locking knobs mounted one in each of said locking holes and being disposed adjacent said first pair of curved ends of said base plate, whereby said base plate is capable of rotation while being constantly captured by said track lips against upward release from said track, said base plate being lockable in selected angularly spaced positions in said range of rotation on said track by screwing said thumbscrews down into the grooves between lands on the bottom wall upper surface of said track.